Patent Claims

1. Imaging device for use in nuclear magnetic resonance (NMR) using coils (1) that serve for the transmission and/or reception of the frequency signals (Larmor frequency) and which are assembled in fields (arrays), the individual coil (1) consisting of a conductor path, which defines an area (2), **characterised in that**
an electrical conductor (3) is disposed at least in the area (2) and is arranged within or outside the coil, and completely surrounds said coil and is closed.

2. Device according to claim 1, **characterised in that** at least one conductor (3) is arranged within and outside the coil (1).

3. Device according to claim 1 or 2, **characterised in that** the spatial profile of the coil (1) and/or conductor (3) is a circle, a rectangle, a hexagon or octagon, or a polygon shape.

4. Device according to one of claims 1 to 3, **characterised in that** the area (2) is a plane.

5. Device according to one of claims 1 to 4, **characterised by** equidistance between the coil (1) and the surrounding conductor (3).

6. Device according to one of claims 1 to 5, **characterised in that** the conductor (3) forming the shielding is arranged outside the coil (1) and that the conductors (3) of adjacent coils (1) and, if applicable , the coils (1) themselves partly or completely overlap one another.

7. Device according to claim 6, **characterised in that** the conductors (3) of adjacent coils (1), but not the coils (1) themselves, overlap one another.

8. Device according to claim 6, **characterised in that** the conductors (3) forming the shielding overlap both the conductor (3) and the coil (1) of the adjacent coil, wherein overlapping of the coils (1) themselves does not take place.

9. Device according to claim 6, **characterised in that** the conductors (3) forming the shielding as well as the conductor track of the coil (1) of the adjacent coils overlap one another.

10. Device according to one of claims 1 to 9, **characterised in that** additional inductances and/or capacitance are incorporated into the coil (1) and/or conductor (3).

11. Device according to claim 10, **characterised in that** the capacitances are arranged between the coil (1) and conductor (3).

12. Device according to one of claims 1 to 11, **characterised in that** the conductor (3), which forms the shielding, extends perpendicularly beyond the area (2) at one or both sides.

13. Device according to one of claims 1 to 3, **characterised in that** the conductor (3) of the shielding is earthed.

14. Device according to one of claims 1 to 13, **characterised in that** the coil (1) can be short-circuited via a switchable diode, in particular a PIN diode.

15. Device according to one of claims 1 to 13, **characterised in that** the conductor (3) can be temporarily opened via a switch, e.g. a switchable diode, in particular a PIN diode.